Promotion of Eco-Tourism Using the Practice of Wikipedia: The Case-Study of Environmental and Cultural Paths in Zakynthos

Martinis, A.[1], Halvatzaras, D.[2], Kabassi, K.[3]

Keywords: sustainable tourism, ecotourism, GIS, Remote Sensing, GPS.

Abstract

The development of sustainable eco tourism and cultural tourism could have positive effects in many socioeconomic factors of a country. A way of promoting eco-tourism is by using the knowledge and the experiences of different people for presenting the natural and cultural resources. This can be achieved using the practice of Wikipedia, in which anyone can submit information on a subject, in our case the environment, and an administrator reviews what will be published. In this work, we focus on the submission of cartographical data concerning the paths and routes that present environmental and cultural interest. These data have been collected and processed using GIS, Remote Sensing and GPS technologies. For each path a description of the type of the path, the terrain involved, experience needed, estimated time required and a classification of the paths according to the difficulty is attempted. In this paper, we present in detail the collection of data and their submission in the platform.

Introduction

There is a growing concern for issues related to tourism's direct and indirect impacts on the environment related to the development, construction and operation of tourism infrastructure as a whole. Since the tourism in Greece is primarily associated with beaches and the sea, there have been - and continue to be - impacts from tourism on the coastal environment. A redirection of tourist pressure from coastal areas to mountainous and semi mountainous areas is therefore necessary and will benefit both coastal and mountainous areas. It is anticipated that it will open up previously disadvantaged areas for further development. The key attraction to draw tourists into mountainous areas is primarily being associated with activities that allow visitors to explore and enjoy the breathtaking scenery of these areas. One of the most popular activities associated with mountains is the walking in long or short distance footpaths and routes. Proper cartographical material that accurate displays the mountainous paths and routes is of great importance for these activities.

The use of sophisticated Information technologies such as Geographic Information Systems (GIS), Remote Sensing (RS), Collaborative Information Repositories (WikiPedia.org) and Global Positioning Systems (GPS) offers many

[1] Department of environmental Technology and Ecology, TEI of Ionian Islands, Greece
[2] Department of environmental Technology and Ecology, TEI of Ionian Islands, Greece
[3] Department of protection and restoration of cultural Heritage, TEI of Ionian Islands, Greece

advantages.[1],[2]. Rapid advances are being made in these technologies, and they are becoming available at ever more reasonable costs.

In this paper a procedure for the integration Geographic Information Systems (GIS) Remote Sensing (RS) and Global Positioning System (GPS) technologies is described for capturing analyzing and displaying accurate information about footpaths and mountainous routes while using a wiki-based service for collecting and distributing information. A series of computerized maps is produced based on satellite images, field data and geographic locations. At the same time methods were explored for delivering the information collected, in the most effective way. For achieving these goals it was embraced the successful Wikipedia model which was enhanced with many more innovative features specific to the needs of alternative tourism.

Study area

Zakynthos is the southernmost and third largest in both size and population of the Ionian Islands. It is situated approximately 300 kilometres west of the capital of Greece, Athens. The Zakynthos environment has become an object of international interest because the loggerhead turtle *Caretta-caretta*, an endangered species protected by international conventions and by Greek legislation lays its eggs on the island's southern shores. Also, on the steep western shores of the island the Mediterranean monk seal Monachus-monachus lives and breeds, a species also protected by Greek low. A big part of the coastal region of the Zakynthos has been characterised as Marine Park (birth location of the caretta-caretta turtles which are highly protected marine species). The tourism sector is of major economic importance for local community but an effort is needed that one does not visit Zakynthos only for its beautiful beaches and crystal blue waters. The island also offers a variety of landscapes including mountains. In the interior of the island, there are many traditional settlements and towns, whose inhabitants are engaged in cultivating traditional crops (olives, vines and vegetables).

Data and Methods

Geographical Information Systems are very well suited for cartographical production[3] A number of basic spatial datasets of the Zakynthos area such as topographic maps, (scale 1: 50,000) elevation data, vector data concerning administrative boundaries, hydrography, transportation networks, vegetation cover maps (scale 1: 20,000), geographic annotation and locations of meteorological stations were introduced and analyzed in a GIS environment.

Every data set has a metadata code, which identifies the source of the data, when the data was collected or measured or monitored or surveyed by the source organization.

Satellite imagery has been Two Landsat 7 Enhanced Thematic Mapper Plus (ETM+) scenes have been used.

Various image processing and vector GIS techniques have been used for the analysis of the satellite imagery and results of the application of those techniques are presented.

Finally a Global positioning system, or GPS was used to accurate plot footpaths. [4]

A complete survey of the Zakynthos footpaths was carried out. A Thales Navigation Mobile Mapper [5] GPS unit with post processing capabilities was used to delineate

footpaths and points of interest. Mapping was performed when ideal satellite and PDOP numbers were available.

At the end of each survey, footpath data were colleceted into a computer and exported into the TNT mips GIS and image processing software.

The majority of the data collected duricng the surveys where classified and stored using a wiki-based web service.

Results

In the context of this work, were recorded and charted on maps elements of particular environmental and cultural interest. These elements were grouped in categories as Environmental (forests, geological information, olives groves, panoramic points etc.) and cultural (monuments, local or traditional products).

Following a spatial or thematic environmental route, visitors have the opportunity to combine vacations with discovering of the natural beauties and the cultural heritage.

These trails are a result of networking of points of particular thematic interest such as olive routes, wine routes, bird watching, etc.) and can be combined by overnight stay and focus on sale of traditional products and the local deliveries of Zakynthos islands. All the above constitute a complete agrotourism proposal that can combine holidays and recreation in the natural environment with environmental and cultural education focused in a specific theme or region.

The elements of particular interest that were recorded in the frame of present work in Zakynthos prefecture region, can be presented in following thematic ways: Ways of Tradition and Culture , Olive ways, Wine ways, Gastronomical ways, Geological ways, Water ways , Ways for the performance of nature, Bird watching, Ways of aromatic and pharmaceutical herbs, Travel in the beauties of nature [5].

The use of a wiki-based service proved to be a greate tool for supporting the tasks of this project since it enabled different researchers to store information collaborativilly into a single space. At the same time it enabled researchers and other types of users to easily search and view information enriched with multimedia material, GIS and textual information

Discussion

The recording and charting of natural and cultural heritage can provide the basis for the development of alternative forms of tourism such as agrotourism and ecotourism. The applications that are supported by the use of new technologies are particularly effective combined with fieldwork and observations on the spot.

In this work, the registration of all particular characteristics of Zakynthos Prefecture was followed by thematic and geographic classification and the presentation of the particular identities of each region. This methodological framework manages to highlight cultural and environmental elements of the islands and make them poles of tourism attraction. In Zakynthos Island the environmental and thematic ways can constitute a model of sustainable tourism growth that may also contribute to the environmental education and sensitization.

The information collected in this project has been olso used as the test feed data for an innovative web-platform which enables visitors to seek, view and contribute

information related to alternative tourism. The design and the implementation of the web-platform was based on the foundlings of a case study [6] which addressed the specific needs for searching, presenting and storing information related to alternative tourism.

Conclusions - Dissemination of Information.

The project has resulted in multiple data that are being published in paper and electronic form. An easy to use 3-page leaflet (in Greek and English) is created and distributed to local authorities and Public and private Tourist Offices. This process will informs the tourists about various mountainous paths and routes and in the same time will enable the authorities to gain an understanding of the works required to maintain and upgrade footpaths. Two different layouts have been organized one for the total area of the island of Zakynthos and one for the data concerning specific footpaths. All data will be organized in a form of an informational Atlas which then will be distributed in the form of a CD or on the internet .

The web platform includes many different innovative aspects. It enables the collaborative collection of information related to alternative tourism by providing a variety of tools such as interactive map, GIS tools, adaptive tagging service, rich text, image handling etc. At the same time it allows visitors to search and view for information using advanced tools which assist them on finding easily information related to alternative tourism taking also into account their personal needs. Never the less the most important feature of the web platform is the ability to search and present information while following ecotouristic rules. Therefore the presented information is automatically enriched with related information that promotes the principals of eco-tourism.

References

[1]. DeMers, M. N., (2000), Fundamentals of Geographic Information Systems (2nd edition).: John Wiley & Sons, New York.

[2]. Clarke, K., (2001), Getting Started with Geographic Information Systems. Upper Saddle River, N.J.:Prentice-Hall.

[3]. Tomlin D.C., (1991), Cartographic Modelling» in Maguire J. D. et al (eds.) Geographical Information Systems: Principles and Applications. London, Longman, Vol.1, pp. 361-374.

[4]. The Global Positioning System

http://www.colorado.edu/geography/gcraft/notes/gps/gps_f.html

Mobile mapping Solutions

http://products.thalesnavigation.com/en/solutions/mobilemap/

[5]. A. Martinis, K. kabassi, E. Skotti, K. Karris, E.Charou, (2009), “Environmetal Routes Setting Methodology: The Case of Corfy & Paxoi Ilands”, International Conference on Toyrism Development, pp 309-312.

[6]. Zins, A.H.; Bauernfeind, U.; Del Missier, F.; Venturini, A.; Rumetshofer, H. (2004), “Information and Communication Technologies in Tourism 2004”. Proceedings of the International Conference in Cairo, Springer, p.249-258